

Dr. Ryan J. Giordano

CONTACT INFORMATION

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EDUCATION

Massachusetts Institute of Technology, Cambridge, MA USA 2019–present
Department of EECS, Laboratory for Information & Decision Systems
Postdoctoral Research Fellow. Advisor: Tamara Broderick

University of California Berkeley, CA USA 2013–2019
Ph.D., Statistics. Advisors: M. I. Jordan, J. McAuliffe, T. Broderick
Thesis: *On the Local Sensitivity of M-Estimation: Bayesian and Frequentist Applications*

London School of Economics, London, UK 2006–2008
MSc., Econometrics.

University of Illinois Urbana-Champaign, IL, USA 1997–2002
BA., Mathematics.
BS., Theoretical and Applied Mechanics.

PROFESSIONAL EXPERIENCE

Google Inc., Mountain View, CA USA 2009–2013
Senior Engineer, Quantitative Analysis

Macquarie Group, London, UK 2008
Risk Management Intern

United States Peace Corps, Kokshetau, KZ 2004–2006
Education Volunteer, successful completion of service

Hewlett-Packard, Boise, ID 2002–2004
Lifetest Coordinator and Reliability Engineer

HONORS AND AWARDS

Selected for the Nov 5th 2021 Gary Chamberlain Online Seminar in Econometrics (2021)
Notable Paper Award, Artificial Intelligence and Statistics (AISTATS) (2019)
Travel Award, Artificial Intelligence and Statistics (AISTATS) (2019)
Travel Award, Bayesian Nonparametrics Conference (2019)
Student Paper Award, ASA Section on Bayesian Statistical Science (2018)
Travel Award, International Society for Bayesian Analysis (ISBA) (2018)
Berkeley Institute for Data Science Fellow (2017–19)
Junior Travel Support Grant, International Society for Bayesian Analysis (ISBA) Bayes Comp (2016)
Spotlight Paper, Neural Information Processing Systems (NeurIPS) (2015)
Outstanding Graduate Student Instructor Award (2015)
Travel Award, Neural Information Processing Systems Workshop on Variational Inference (2014)
Hertz Foundation Graduate Fellowship Finalist (2014)
Google Operating Committee Award (2010)
Advanced-high speaker of Russian in Peace Corps Aptitude Test (2006)
Advanced-mid speaker of Kazakh in Peace Corps Aptitude Test (2006)
Selected as a Peace Corps “Success Story” for a congressional report (2005)
Best Project, Undergraduate Mechanics Research Conference (2002)
Best Presentation, Undergraduate Mechanics Research Conference (2002)
Seely, Sinclair, Stippes, TAM Merit Scholarships (1998–2002)

PREPRINTS /
IN PREPARATION

M. Kasprzak, **R. J. Giordano** & T. Broderick (2022). How good is your Gaussian approximation of the posterior? Finite-sample computable error bounds for a variety of useful divergences. *arXiv:2209.14992 [math.ST]*. [link]

R. J. Giordano^{*}, M. Ingram^{*} & T. Broderick (2021). Faster and More Accurate Black Box Variational Inference Using a Deterministic Objective.

^{*} = equal contribution first authors. In preparation.

R. J. Giordano & T. Broderick (2021). The Bayesian Infinitesimal Jackknife for Variance. In preparation.

R. J. Giordano, M. I. Jordan, & T. Broderick (2019). A Higher-Order Swiss Army Infinitesimal Jackknife. *arXiv:1907.12116 [stat.ME]*. [link]

UNDER REVIEW

T. Broderick, **R. J. Giordano**^{*}, R. Meager^{*} & (2021). An Automatic Finite-Sample Robustness Metric: When Can Dropping a Little Data Make a Big Difference?

^{*} = equal contribution first authors (author order alphabetical). *arXiv:2011.14999 [stat.ME]*. [link]
Selected for the Nov 5th 2021 **Gary Chamberlain Online Seminar in Econometrics**.
Submitted to Econometrica.

R. J. Giordano^{*}, R. Liu^{*}, M. I. Jordan, & T. Broderick (2021). Evaluating Sensitivity to the Stick-Breaking Prior in Bayesian Nonparametrics.

^{*} = equal contribution first authors. *arXiv:2107.03584 [stat.ME]*. [link].
Accepted to Bayesian Analysis.

PUBLICATIONS

R. J. Giordano, W. Stephenson, R. Liu, M. I. Jordan, & T. Broderick (2019). A Swiss Army Infinitesimal Jackknife. *The 22nd International Conference on Artificial Intelligence and Statistics*. [link] One of three papers selected for an **AISTATS notable paper award**.

R. J. Giordano, T. Broderick, & M. I. Jordan (2018). Covariances, Robustness, and Variational Bayes. In *Journal of Machine Learning Research*. [link]

J. Regier, K. Fischer, K. Pamnany, A. Noack, J. Revels, M. Lam, S. Howard, **R. J. Giordano**, D. Schlegel, J. McAuliffe, & R. Thomas (2019). Cataloging the Visible Universe Through Bayesian Inference in Julia at Petascale. In *Journal of Parallel and Distributed Computing*. [link]

J. Regier, K. Pamnany, K. Fischer, A. Noack, M. Lam, J. Revels, S. Howard, **R. J. Giordano**, D. Schlegel, J. McAuliffe, R. Thomas, & Prabhat (2018). Cataloging the Visible Universe Through Bayesian Inference at Petascale. In *IEEE International Parallel and Distributed Processing Symposium (IPDPS)*. IEEE, 2018. [link]

R. J. Giordano, T. Broderick, & M. I. Jordan (2015). Linear Response Methods for Accurate Covariance Estimates from Mean Field Variational Bayes. In *Advances in Neural Information Processing Systems*. One of 67 papers selected for a **Spotlight presentation**. [link]

R. Winther, **R. J. Giordano**, M. D. Edge, & R. Nielsen (2015). The Mind, the Lab, and the Field: Three Kinds of Populations in Scientific Practice. In *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*. [link]

WORKSHOP
PAPERS

R. J. Giordano^{*}, R. Liu^{*}, M. I. Jordan, & T. Broderick (2018). Evaluating Sensitivity to the Stick Breaking Prior in Bayesian Nonparametrics. In *NeurIPS 2018 Bayesian Nonparametrics Workshop*. ^{*} = equal contribution first authors. [link]

R. J. Giordano^{*}, R. Liu^{*}, N. Varoquaux^{*}, M. I. Jordan, & T. Broderick (2017). Measuring Cluster Stability for Bayesian Nonparametrics Using the Linear Bootstrap. In *NeurIPS 2017 Advances in Approximate Bayesian Inference Workshop*. ^{*} = equal contribution first authors. [link]

R. J. Giordano, T. Broderick, R. Meager, J. Huggins, & M. I. Jordan (2016). Fast Robustness Quantification with Variational Bayes. In *2016 ICML Workshop on #Data4Good: Machine Learning in Social Good Applications*. [\[link\]](#)

INVITED TALKS	NeurIPS 2021 Bayesian Deep Learning Workshop	(upcoming) December 2021
	Frequentist Covariances of Posterior Expectations with the Bayesian Infinitesimal Jackknife	
	Johns Hopkins Bayesian Learning And Spatial Temporal (BLAST) working group	October 2021
	Variational Methods for Latent Variable Problems	
	New England Statistical Society (NESS) annual meeting	October 2021
	Frequentist Covariances of Posterior Expectations with the Bayesian Infinitesimal Jackknife	
	Joint Statistical Meetings (JSM)	August 2021
	An Automatic Finite-Sample Robustness Metric: Can Dropping a Little Data Change Conclusions?	
	International Society for Bayesian Analysis Annual Meeting	June 2021
	Frequentist Covariances of Posterior Expectations with the Bayesian Infinitesimal Jackknife	
	ISBA-BNP series webinar	May 2021
	Assessing Sensitivity to the Stick-Breaking Prior in Bayesian Nonparametrics	
	Harvard Graduate School of Education Miratrix CARES lab	February 2021
	An Automatic Finite-Sample Robustness Metric: Can Dropping a Little Data Change Conclusions?	
	Splunk Statistics Seminar Series	October 2019
	A Higher-Order Swiss Army Infinitesimal Jackknife	
	Google Statistics Journal Club	September 2019
	On the Local Sensitivity of M-estimation: Bayesian and Frequentist Applications	
	Perlmutter Research Group	June 2019
	Variational Methods for Latent Variable Problems	
CONTRIBUTED TALKS	BAYSM Bayesian Young Statisticians Meeting	August 2021
	Assessing Sensitivity to the Stick-Breaking Prior in Bayesian Nonparametrics	
	BAYSM Bayesian Young Statisticians Meeting	November 2020
	Effortless Frequentist Covariances of Posterior Expectations in Stan	
	StanCon	July 2020
	Effortless Frequentist Covariances of Posterior Expectations in Stan	
	Berkeley Statistics Student Seminar Series	April 2019
	Sensitivity and Uncertainty in Variational Bayes with an Application to the EM Algorithm	
	12th International Conference on Bayesian Nonparametrics, Oxford, UK	June 2019
	Evaluating Sensitivity to the Stick Breaking Prior in Bayesian Nonparametrics	
	Berkeley Institute for Data Science Lunchtime Seminar Series	October 2018
	Sensitivity, Uncertainty, and Automatic Differentiation	
	Berkeley Institute for Data Science Lunchtime Seminar Series	July 2018
	Bayesian Inference and Inverse Problems	
	StanCon	January 2018
	Automatic Robustness Measures in Stan	
	Berkeley BSTARS Conference	March 2017
	How Bad Could it Be? Worst-case Prior Sensitivity Estimates for Variational Bayes	

CONTRIBUTED TALKS (CONTINUED)	Berkeley BSTARS Conference	March 2016
	Measuring Robustness with Variational Bayes	
	Berkeley–Stanford Student Joint Colloquium Covariance Matrices for Mean Field Variational Bayes	November 2014
	Joint Statistical Meetings (JSM) Estimating Average Proportional Changes in Large, Sparse Data	August 2013
PROFESSIONAL SERVICE	Student Leadership	
	<i>University of California, Berkeley, Statistics Department</i>	
	• Diversity Taskforce Member	2018–2019
	• Graduate Student Mentor	2017–2019
	• Diversity Committee Member	2017
	• Co-organizer of the Gender and Diversity Roundtable	2016–2018
	• Student Seminar Committee Member	2014–2017
	<i>University of Illinois, Urbana-Champaign, Engineering Mechanics Department</i>	
	• President, Student Society for Experimental Mechanics	2000–2002
	• Organizer, Free University Opera for Engineering Students	2001–2002
	Journal Reviewing	
	• Bayesian Analysis	
	• Journal of Machine Learning Research	
	Conference Reviewing	
	• Advances in Neural Information Processing Systems (NeurIPS)	
	• International Conference on Machine Learning (ICML)	
	• International Conference on Artificial Intelligence and Statistics (AISTATS)	
	• Advances in Approximate Inference (NeurIPS-adjacent workshop)	
	• I Can’t Believe It’s Not Better (NeurIPS workshop)	
TEACHING	<i>University of California, Berkeley, CA, USA</i>	
	• Teaching Assistant, STAT215 Applied Statistics (Graduate-level)	Fall 2014
	<i>Prison University Project, San Quentin State Prison, CA, USA</i>	
	• Volunteer math teacher	Fall 2015, Spring 2016, Fall 2017
	<i>Kokshetau Elementary School #3, Kokshetau, Akhmola, Kazakhstan</i>	
	• Elementary school teacher of mathematics and English as a second language	2004–2006
	<i>University of Illinois, Urbana-Champaign, IL, USA</i>	
	• Teaching Assistant, Mechanics of Materials Lab	Fall 1999
	• Teaching Assistant, Introduction to Statics	Spring 1999